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BUREAU OF INDIAN AFFAIRS

Albuquerque Area Office

BUREAU OF LAND MANAGEMENT

New Mexico State Office

**DRAFT**

RECORD OF DECISION FOR THE JACKPILE-PAGUATE URANIUM MINE RECLAMATION PROJECT

AGENCY: Bureau of Indian Affairs, Albuquerque Area Office and Bureau of Land Management, New Mexico State Office

ACTION: Record of Decision for the Jackpile-Paguate Uranium Mine Reclamation Project

SUMMARY: The various alternative forms of reclamation of the Jackpile-Paguate Uranium Mine were originally presented in a draft environmental impact statement issued by the Bureau of Land Management (BLM) and Bureau of Indian Affairs (BIA) on March 5, 1985. The final environmental impact statement was issued on October 10, 1986.

The final environmental impact statement presents six alternative plans for reclamation of the Jackpile-Paguate Uranium Mine. These alternatives are: 1. No Action, Anaconda Company's "green book" proposal; 2. the Department of the Interior Alternative; 3. the Laguna Proposal; 4. Anaconda Company's most recent proposal; and 5. the Preferred Alternative.

Recent negotiations between the Pueblo of Laguna and Anaconda Company (AMC) have produced a proposed agreement. This agreement, which would require approval by the Department of the Interior, provides that AMC would provide a total of 43.6 million dollars in five equal annual payments to the Pueblo. The Pueblo would then assume responsibility for the reclamation of the mine site in accordance with the decision made by the Department of the Interior (DOI) on the proper level of reclamation for the mine.

This Record of Decision announces a decision on the part of the BIA and BLM that the level of reclamation to be implemented by the responsible party, either AMC or the Pueblo of Laguna, is one that incorporates elements of both the Preferred Alternative and the Laguna proposal.

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SUPPLEMENTARY INFORMATION: The reclamation project was originally described in a draft environmental impact statement issued by the BLM and BIA on March 5, 1985. The draft described alternatives consisting of No Action, Anaconda Company's plan (called the green book), the Pueblo proposal, and the DOI plan



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(with two sub-alternatives for responding to the recovering groundwater). The final environmental impact statement, issued in October 10, 1986, modified the alternatives in response to comments received on the draft. These modifications include the addition of a new plan submitted AMC and the modification of the Laguna proposal.

#### DESCRIPTION OF THE ALTERNATIVES:

**No Action Alternative:** The No Action Alternative would mean that no reclamation would be performed. The area would be secured to prevent unauthorized entry and an environmental monitoring program would be operated. Additional requests by the Pueblo of Laguna to utilize certain facilities for storage could be accommodated provided such use was temporary and deemed safe. This alternative is not feasible because the Secretary of the Interior cannot approve a plan which does not provide a reasonable measure of protection to public health and safety, and does not reduce environmental hazards to the extent possible. This alternative is included and analyzed only to provide a benchmark that would allow decision makers to compare the magnitude of environmental effects for a given range of alternatives.

**Green Book Proposal:** This alternative was originally developed by Anaconda Company but was subsequently replaced by the 1985 Multiple Land Use Reclamation Plan on August 19, 1985. Under this alternative the open pits would be back-filled to at least three feet above groundwater recovery levels as projected by Dames and Moore, 1983. All highwalls would be scaled to remove loose material. The rim of the Gavilan Mesa would be cut back by mechanical means or blasting and the base of the highwall would be buttressed with waste and overburden. Waste dump slopes would be reduced to between 2:1 and 3:1; most slopes would be terraced. Jackpile Sandstone exposed by resloping would be covered with four feet of overburden and one foot of topsoil. All protore and waste material lying within 200 feet of the Rios Paguete and Moquino would be removed. Facilities would either be removed or cleaned up and left intact. All disturbed areas (pit bottoms, waste dumps, old roads, etc.) would be topsoiled and seeded. Reclamation would be considered complete when the weighted average for basal cover and production on revegetated sites equals or exceeds 70 percent of that found on comparable reference sites. The post-reclamation monitoring period would be a minimum of three years.

**DOI Proposal (Monitor Option and Drainage Option):** This alternative was developed by the DOI. Although similar to the Green Book Proposal in overall concept, it varies in important details. Because of concerns over the potential ponding of water or salt accumulation in the open pits, DOI has identified two options for treatment of the pit bottom. 1) a Monitor Option which would require backfill or the pits with protore, excess material from waste dump resloping, and soil cover. Due to the excess material volume (approximately 19 million cubic yards) the estimated backfill elevation of the pit floors could be 40 to 70 feet higher than the Green Book proposed minimum. The pits would remain as closed basins, in which case the potential build-up of salt and saline water would be monitored. If soil problems were observed, additional backfill and revegetation would be required. The monitoring period would be sufficient duration to determine the stable future water table conditions; and 2) a Drainage Option which would restore the natural mode of overland runoff from the pit areas. Backfill volumes and elevations would be approximately the same as for the Monitor Option, but none of the pits would be left as closed basins.

Open channels would be constructed with a gradient equal to or flatter than local natural watercourses to convey runoff from the pit areas to the Rio Paguete. This would avoid ponded water or undrained saline soils on the reclaimed minesite.

For both options, other aspects of reclamation would be the same. Highwater stability techniques would be essentially the same as the Green Book Proposal. With few exceptions, waste dump slopes would be reduced to 3:1, with no terracing. Treatment of Jackpile Sandstone and minesite facilities would be the same as the Green Book Proposal. All protore and waste material lying within 200 feet of the Rios Paguete and Moquino would be removed. In addition, a bridge or culvert structure designed to restrict meanders of the Rio Moquino would be constructed. All disturbed areas would be topsoiled and seeded. Reclamation would be considered complete when revegetated sites reach 90 percent of the density, frequency, foliar cover, basal cover and projection of the undisturbed reference areas. The post-reclamation monitoring period would vary for each parameter.

Laguna Proposal: This alternative was developed by the Pueblo of Laguna in consultation with their technical consultants. In May 1986, the Pueblo provided the DOI with details and/or changes to the Laguna Proposal which have been reflected in the Final EIS.

Under this proposal, all pits would be backfilled 10 feet above groundwater recovery levels projected by Dames and Moore, 1983. In general, the top 15 feet of each highwall would be reduced to a 45 degree angle. With few exceptions, waste dump slopes would be reduced to 3:1. All contaminated material within 100 feet of the Rio Paguete would be removed. All waste dump would be moved 50 feet back from the Rio Moquino and the toes of the dumps would be armored with riprap. Minesite facilities would be handled essentially the same as under the DOI's Proposal except that the rail spur would remain intact. Topsoiling, seeding techniques and other reclamation measures would be the same as DOI's Proposal. The post-reclamation monitoring period would vary from 3 to 20 years.

Anaconda Proposal (1985 Multiple Land Use Reclamation Plan): Under this alternative the Jackpile and South Paguete open pits would be backfilled to an extent that would prevent chronic free-water ponding with groundwater levels controlled in the backfill with phreatophytic vegetation. The North Paguete open pit would be made into a water storage reservoir by diverting the Rio Paguete through the pit. The rest of the Jackpile and North Paguete pit highwalls would be scaled or trimmed back a distance of 10 feet at 3:1 slope. No additional modification of the South Paguete pit highwall is proposed. Waste dump slope modifications and topdressing requirements would vary. All Jackpile Sandstone and waste material would be moved back 50 feet from the Rios Paguete and Moquino. All buildings and other surface structures would be left intact where it is safe to do so. Revegetation success would be based on a comparison of the entire revegetated area relative to an analogous reference area on a weighted average basis. Revegetated areas would be sampled for the third year after the last seeding or reseeding effort by or for Anaconda and year-to-year thereafter until success criteria area met.

Preferred Alternative: Under this alternative pits would remain as closed basins. Pits would be backfilled to a least 10 feet above the Dames and Moore

(1983) projected groundwater recovery levels. In general, the top 15 feet of each highwall would be cut to a 45 degree angle. All soil at the top of the highwall would be sloped to 3:1. With few exceptions, waste dump slopes would be reduced to 3:1. There are two options for stream stabilization: Option A - to remove all material within 200 feet of the Rio Paguete and Moquino, and construct a concrete drop structure across the Rio Moquino, and Option B - to remove all contaminated material within 100 feet of the Rio Paguete and remove all waste dumps within 50 feet of the Rio Moquino and armor the toes of the dumps with riprap. Facilities would either be removed or cleaned up and left intact. All disturbed areas (pit bottoms, waste dumps, old roads, etc.) would be topsoiled and seeded. Reclamation would be considered complete when revegetated sites reach 90 percent of the density, frequency, foliar cover, basal cover, and production of the undisturbed reference areas. The post-reclamation monitoring period would vary for each parameter. This alternative is environmentally preferred.

**BASIS OF THE DECISION:** The following decision criteria, drawn from reclamation to determine the environmentally preferred alternative objectives were utilized. These criteria are listed in order to importance:

1. Ensure human health and safety.
2. Reduce the releases of radioactive elements and radionuclei to as low as reasonably achievable.
3. Ensure the integrity of all existing cultural, religious and archeological sites.
4. Return the vegetative cover to a productive condition comparable to the surrounding area.
5. Provide for additional land uses that are compatible with other reclamation objectives and that are desired by the Pueblo of Laguna.
6. Eliminate the need for post-reclamation maintenance.
7. Blend the visual characteristics of the minesite with the surrounding terrain.
8. Employ the Laguna people in efforts that afford them opportunities to utilize their skills or train them as appropriate.

Under these criteria the Preferred Alternative is environmentally preferred. All the action alternatives successfully meet requirements under criteria 1, 2, 3, and 7. The Green Book Proposal, DOI Proposal, Laguna Proposal, and the Preferred Alternative are most successful in meeting criteria 5. The Laguna Proposal best meets criteria 8 (largely through the potential approval of the negotiated agreement). The Preferred Alternative best meets criteria 6.

Recent negotiations between the Pueblo of Laguna and AMC have produced a proposed agreement. This agreement, which would require approval by the DOI provides that AMC would provide a total of 43.6 million dollars in five equal payments to the Pueblo. The Pueblo would then assume responsibility for the reclamation of the minesite in accordance with the decision made by the DOI on the proper level of reclamation for the mine.

The negotiated settlement between AMC and the Pueblo of Laguna offers increased tribal employment as well as providing the pueblo an opportunity to exert direct control over the reclamation effort. It is appropriate for the Pueblo, as the beneficial owners, to do so as long as no conflicts with public health and safety or long term land use result.

**DECISION:** Based on the above noted factors, it is the decision of the Bureau of Indian Affairs and Bureau of Land Management that the level of reclamation

to be implemented is one that incorporates elements of the Preferred Alternative and the Laguna Proposal. It should be noted that these two alternative share many common elements. Generally, the plan to be implemented will adhere to requirements of the Laguna Proposal for engineering and construction aspects of reclamation, and will adhere to the requirements of the Preferred Alternative for revegetation and monitoring. However, some minor exceptions to this general rule exist.

The reclamation to be implemented has the following characteristics:

Pit Bottoms

Backfill levels	Same as Laguna Proposal but a groundwater recovery level monitoring program will be implemented. Additional backfill will be added as necessary to control ponded water. The duration of the monitoring program will
Backfill Materials	Same as Laguna Proposal
Stabilization	Same as Laguna Proposal
Post Reclamation Assess	Human and animal access to pit bottoms will be prevented in perpetuity. Livestock grazing will be prevented through use of sheep-proof fencing due to the uncertainties of predicting radionuclide and heavy metal uptake into plants (forage).
Pit Highwalls	Same as Laguna Proposal
Waste Dumps	Same as Laguna Proposal
Protore Stock Piles	Same as Laguna Proposal
Site Stability & Drainage	Same as Laguna Proposal
Surface Facilities/Structures	Same as Laguna Proposal
Drill Holes	Same as Laguna Proposal
Underground Modifications	Same as Laguna Proposal

Revegetation Methods

Top dressing	Same as Laguna Proposal
Surface Preparation	Same as Preferred Alternative
Seeding and Seed Mixtures	Same as Preferred Alternative
Revegetation Success	Same as Preferred Alternative

<u>Monitoring</u>	Same as Preferred Alternative
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Security

The party responsible for implementing reclamation would have full responsibility for mine access and security during reclamation and monitoring activities. Security during the monitoring phase would require close coordination with the Pueblo of Laguna and BIA by the responsible party to prevent livestock grazing on revegetated areas.

Compliance

Same as Preferred Alternative

Reclamation Completion

Same as Preferred Alternative

Rationale for Selection

Same as Preferred Alternative

This decision will allow approval of the negotiated agreement between the Pueblo of Laguna and AMC. Due to similarities between the Pueblo Plan and the Preferred Alternative, major differences in impacts from selection of this level of reclamation are not expected to result. The DOI safeguards for public health and safety and long term land use will be implemented. Similarly, the Pueblo of Laguna, as beneficial owners of the land, will have many of the tribal preferences accommodated. Additionally, if the negotiated agreement is approved, the Pueblo will be allowed additional opportunities for tribal employment and possible financial benefit.

MITIGATION MEASURES: The alternative selected in this Record of Decision adopts the most practicable means of minimizing environmental harm resulting from years of past mining on the Jackpile-Paguate Uranium Mine leases.

IMPLEMENTATIONS AND MONITORING: Within 30 days of the issuance of this Record of Decision, a decision is also expected with regard to the possible approval of the negotiated settlement reached by the Pueblo of Laguna and AMC. In the event that this agreement is approved, the first payment by AMC would be made, and a second agreement between the Pueblo of Laguna and BIA which will be the controlling document for reclamation will be finalized. The Pueblo of Laguna will assume AMC's responsibility for reclamation. The agreement with the Pueblo of Laguna will incorporate the alternative selected as the reclamation plan. Detailed engineering plans and drawings will be completed by the Pueblo of Laguna to allow the initiation of reclamation.

In the event that negotiated agreement is not approved, AMC will be issued an order to implement reclamation as outlined in this Record of Decision.

Monitoring for various elements will be required as outlined under the Preferred Alternative in the Final environmental impact statement. A Memorandum of Understanding between the BLM and BIA will provide for monitoring and oversight of the Pueblo of Laguna's progress on reclamation, compliance with this decision, and compliance with the above noted separate agreement between the BIA and Pueblo of Laguna.

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State Director, New Mexico  
Bureau of Land Management

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Area Director, Albuquerque Area Office  
Bureau of Indian Affairs

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Date

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Date